The History and the Myth of Scots Pine

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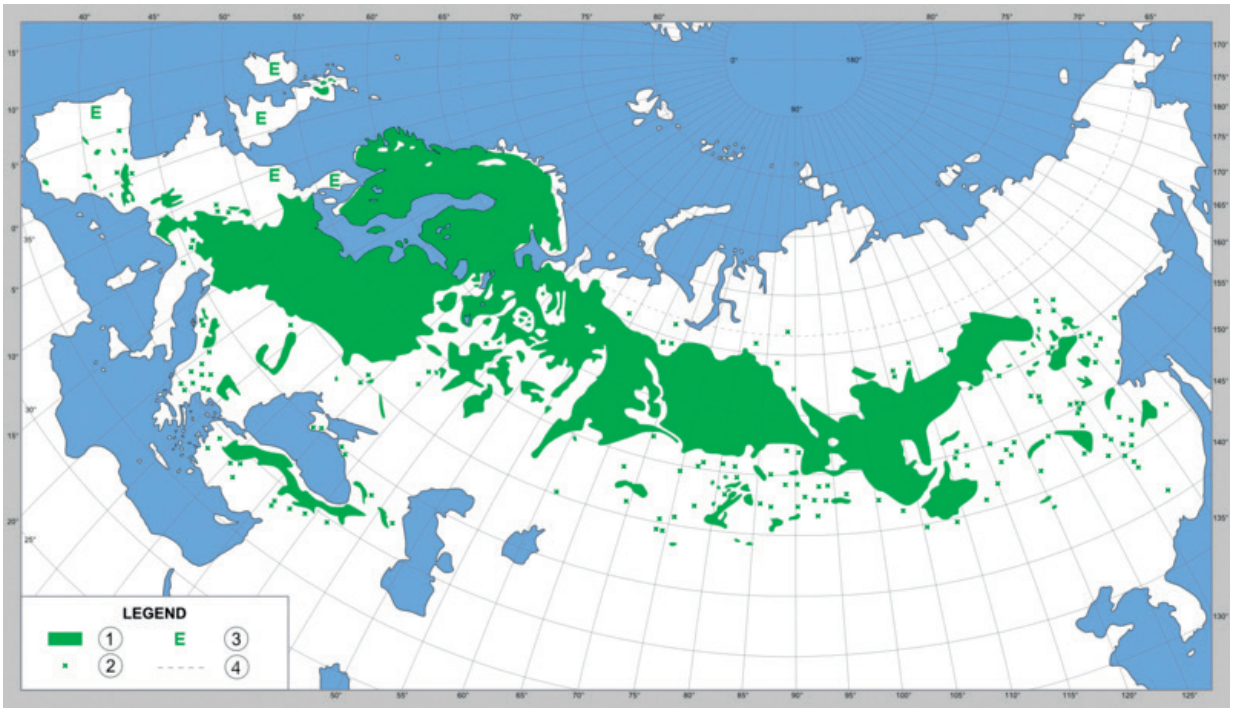
We celebrate the decision to make the Scots pine the national tree. No tree is more redolent of the Highlands or more lovely in its manner of growing in the glens. Yet there is an irony in the choice, as *Pinus sylvestris* (despite our name for it) is one of the most widely distributed trees on the globe, with a natural range that stretches across the northern hemisphere from China to Spain, and as far south as Turkey. Scotland is at the north-western extremity of its range, where it is more sensitive to climate change than most of our other native trees, and its range in our countryside has ebbed and flowed over millennia. If the choice is intended to illustrate gnarled and tough Scottish distinctiveness it is a poor one. If it was intended to show how to adapt and cling on in the face of adversity, it is quite a good one.

There has been a certain amount of popular confusion about the term Scots pine. Our populations of *Pinus sylvestris* belong to a distinctive genotype with short cones and short needles that we call Caledonian pine, and Caledonian pinewoods are internationally recognised as a distinct habitat, where the trees often, but not always, grow relatively far apart, in a matrix with heather, bilberry and frequently juniper, and develop spreading canopies and distinctive pyramidal twisted shapes. But all are still Scots pine, which is one of the most variable as well as one of the most widely distributed trees in the world. Then there is a muddle between Caledonian pine and the Caledonian Forest, alias 'the Great Wood of Caledon', which was a name originally given by the Romans to the woods they encountered in Scotland, but is now normally given by conservationists to Scottish woodland at its greatest extent, which was some 4,000 years before the Romans arrived. It is often assumed (because of this confusion over names) that the Caledonian Forest was composed of Caledonian pinewoods, which is not true at all. Even at the peak of woodland cover, only a relatively small proportion of trees in Scotland would have been pine, because oak, elm, alder and other broadleaf trees outcompeted pine except on poor acid soils in parts of the Highlands.

But, in popular view, the Caledonian Forest is often supposed to have been composed of Caledonian pine. On Wikipedia the description of Caledonian pine slips into Caledonian Forest and out again without a pause. And the popular view is also that the Romans found the country still covered in trees – *ie* pine – and fought their way through it, cutting it down and burning it in a vain attempt to overcome the Caledonian tribes. In fact the Romans occupied the Lowlands after they had been largely cleared by Iron Age man. In the Highlands there was more wood left, but it is the considered opinion of David Breeze, formerly Chief Inspector of Ancient Monuments in Historic Scotland, that there was probably no more wood in the Highlands



then than there is now. It suited Tacitus and the other Roman writers to put about the story that Scotland, like Germania, was covered with wood, because it helped to explain why Agricola and other generals failed to conquer the natives. No-one in Rome was going to check up. It is worth remembering that the Roman authors also reported that the natives lived in the bogs and disappeared into the bottom breathing through straws when the Roman soldiers passed by.

For many centuries the Great Wood was forgotten, but with the resurrection of Classical learning at the Renaissance, Hector Boyce, Principal of Aberdeen University, revived a version of the story and, when in the eighteenth century, improving lairds began to drain bogs and find tree stumps in them, they took this to be evidence of Roman destruction (carbon dating in the twentieth century usually found such stumps to be at least 4000 years old). The Victorians readily took to the idea, and under the spell of the Sobieski Stewarts, embroidering and fabricating legends of a great sea of pines spreading out to cover the Highlands, the tale slipped into our own days. It was a story that the noted ecologist Fraser Darling accepted, and he believed that its destruction by humans created a 'wet desert' in the Highlands which could be reversed by modern afforestation. Miles and Jackman in 1991 won a prize for a book on the Great Wood which blamed the English and the lairds for cutting it down in the eighteenth century. It was all completely wrong, but it was a great story, repeated without a blush only last year by Chris Packham in a BBC broadcast from the Highlands.

The truth is that for the last 4000 years or so, naturally-formed open country, blanket bog, has been more of an environmental characteristic of northern Scotland than Scandinavian-type dense forest. But let us go back to the beginning to see what science and archaeology can tell us about the actual story of Scots pine.

The abrupt end of the last ice age some 11,700 years ago left Scotland bare of everything except reindeer moss. Birch and then hazel were the first trees to colonise. A trace of pine is first detected in north-west Scotland from stomatal guard cells, at about 10,500 years ago: then two needles occur in Deeside radio-carbon dated to about 10,000 years ago: shortly afterwards pine is found in the Galloway hills, the Solway lowlands and around Moffat, but that did not persist for long. This is the only significant natural occurrence in the Lowlands apart from a brief incursion of pines around Stirling around 4,000 years ago.

The first lasting large scale establishment of pine came in north-west Scotland, notably around Loch Maree, about 9,600 years ago, the trees apparently coming from refugia in Ireland or perhaps from somewhere to the west now under the sea. The north-western pines remain genetically distinct from all others in Scotland. At East Affric and in the Cairngorms, about 8,500-8,400 years ago a similar invasion came from a different but unknown source. Pine spread south into Rannoch about 8,000 years ago and north into Sutherland about 7,600 years ago. Some 8,100 years ago it went further uphill, as high 750 metres in Cairngorm. After that it came and went according to episodes of climate change: short-term but nevertheless harsh and major events, especially in respect to wind strength and rainfall, to which it proved extremely sensitive.

The most serious setback of all for pine was the gradual spread of blanket bog, and the accompanying spread of alder, which outcompeted pine on wet acid ground. Bog began to form in some places less than a millennium after the end of the last ice age, creating wetlands of varying topography and hydrology, and the process lasted for thousands of years. Fraser Darling half a century ago thought his 'wet desert' was a consequence of human mistreatment of a fragile

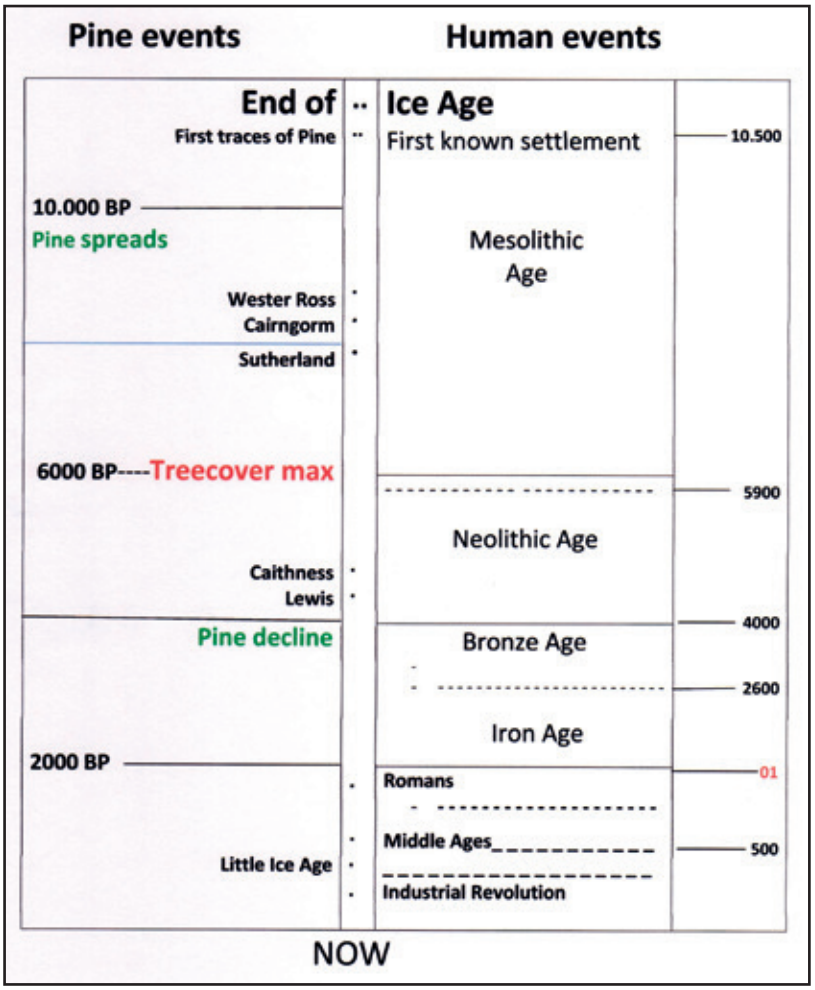
environment. It is now considered a more gradual process than he assumed, and to have had nothing to do with man or with the spread of farming and grazing animals as he had thought. Richard Tipping has shown it to be a natural process of soil deterioration brought on by heavy rainfall under certain geological conditions. James Fenton has described blanket bog as the natural climax vegetation of much of northern and western Highland Scotland, and wild open country as being a precious distinguishing natural feature of the Highlands, compared to, say, Scandinavia or the Alps.

Pine could not cope with totally waterlogged ground. Nor could it compete on the best ground with many other trees as they migrated from the south, like oak, or on wet ground, with alder. About 6000 years ago tree cover as a whole (but not necessarily pine cover) reached its greatest extent, so that there would have been few places in Scotland from which no trees were visible. After that, the effects of a wetter and windier climate began to diminish the woodland area. But pine, always an opportunist, had another age of expansion when a temporary spell of benign weather dried the surface of many bogs. About 4,500 years ago it reached Caithness, and possibly even Orkney and Lewis; it stretched south to Stirling, probably growing only on bogs, though perhaps only for one generation of trees before the climate deteriorated again, and it died out.

Scots pine is said by some once to have covered 1,500,000 hectares. In 1998 the Forestry Commission calculated that the surviving ancient Caledonian pinewoods now only cover 17,900 hectares, scattered in 84 discreet woods. But the first figure apparently represents the extent of the range within which pinewoods might have grown 6000 years ago, by a species famous for coming and going. And 6000 years ago the Scottish environment itself was a very different place, climatically and in terms of the character and structure of the soil. To say that Scots pine now occupies one percent of its former area does not seem to be a very meaningful statement.

How far is man responsible for the ultimate fate of the pinewoods? He was certainly involved. It is important to note that man had been settling in Scotland since about 10,500 years ago, and was firmly established when Scots pine made its first big settlement at 9600 years ago. At this stage he was a hunter gatherer, but it is possible to imagine that he began to manipulate Scots pine through the use of fire, to open land to attract deer and other animals as prey. Fire would tend to assist pine, as the seeds are stimulated to germinate by heat and aided to establish if choking vegetation is burned off. Scots pine co-evolved in Scotland with man, and though his influence might not have been critical, it cannot be dismissed either. To assume, as many environmentalists do, that you can get 'back to nature' (*ie* to a time before human influence) by seeking to recreate the world before farming, is wrong.

In fact, the later, adverse, impact of man has probably been somewhat less on pine than on most trees. Because broadleaf species like oak, ash and elm monopolised the best soils, this was ground



which early man, particularly Iron Age and medieval man with their ploughs, was anxious to utilise, and therefore to clear of trees. This ended in the complete destruction of the Lowland forests. Pine, on the other hand, occupied thin, glacial, mineral and acid soils that were less attractive to farmers, but not totally so. It began to disappear from places where it had been well established, even at Mar Lodge before about 400 BC. Here, however it later returned, though it is unclear when or how. Remains of prehistoric settlements are also located under the pine woods of Loch Garten. Many relatively fertile stretches of the straths that are now farmed must also once have held pine that was cleared for agriculture, but compared to the cleared areas in the Lowlands the extent is small.

So when and how did people begin to have a critical impact on the pinewoods? The main impact must have been not from ploughing but from grazing, when cattle, horses, goats and sheep added to the impacts of native deer to prevent or limit regeneration. This could have had a limiting effect from late Neolithic times in some places, or when combined with episodes of poor climate, yet as late as the eighteenth century a witness in a lawsuit in Mar said that 'our Highland woods shift their stances', meaning that regeneration regularly took place outside the bounds of existing woods, on the open moor. Therefore the moor could not then have been so heavily grazed as to inhibit sapling establishment. Highland cattle were closely attended by herdsmen and boys on the hill, which could help to prevent

damage to regeneration, and the heavy feet of cows punctured the ground and enabled seed to germinate among the heather. But when cattle were replaced in the nineteenth century by untended sheep that grazed closely and trod lightly, the chances of regeneration were much reduced. In some places, also, deer were fenced inside the pinewoods, so that they could be more easily stalked, and it had always been common to use woods as wintering places for farm stock, which would tend to inhibit internal regeneration. Even when sheep were reduced or replaced, the later Victorian rise in deer numbers for shooting on the open moor had a serious effect on the chance of the woods regenerating. By the time of Steven and Carlisle's famous survey of the surviving ancient pinewoods in 1959, they were hardly regenerating anywhere.

One can see from twentieth-century maps compared to eighteenth-century ones, that in places there was a shrivelling effect, so that the woods occupied less space than they had done before. They seem to withdraw into their cores. A definite gap opens up, for example, between Abernethy Forest and Glenmore. But even earlier, in the seventeenth century and early eighteenth century, during the bad weather of the Little Ice Age, it seems that several western woods began to fail. This was the period when the fourteen-mile-long forest by Loch na Sealga in Wester Ross vanished, and when the woods of Little Loch Broom slipped under the peat, and when Glen Orchy and Glencoe became deforested because there were no young trees to come up when the old ones were felled. It was also the time when pines at high altitude in Mar were noticed as collapsing without regeneration. This looks like another example of the failure of pine to withstand episodes of wet and windy weather, but it could have been exacerbated by animal grazing at levels that could have been withstood in good times but which proved fatal in bad ones.

But what about human overuse of the timber? Pine was a very useful resource for house building in vernacular architecture, though local pine was thought too splintery and knotty to be very useful in gentlemen's houses, except for rough work. From the late eighteenth century for nearly a hundred years it supported a ship-building industry at Speymouth. It was used for sleepers when the railway crept towards Inverness, and for pitprops in Lowland coal mines. Water pipes made from hollowed out pines in Rothiemurchus and Abernethy were exported to London. Peasant homes were lit with fir candles made form the trunks and roots of pine, and pine cones were kindling to their fires. Pine wood was used for peasant furniture and farm implements. Pine roots were also used by local people to make ropes and baskets. Tar was obtained from pines in Wester Ross for treating fishing boats, though there was no enduring wood tar industry in Scotland as there was in Sweden or Carolina.

Local use was unlikely to strain the resource, as it was light and easily controlled, but when opportunities for distant use arose the situation became more dangerous. The temptation to over-exploit could prove irresistible to hard-pressed lairds, as it did between the Napoleonic Wars and the middle of the nineteenth century, a time when Scottish wood enjoyed a degree of trade protection from Scandinavian imports. Forest after forest was then depleted in Speyside and Deeside, and travellers wrung their hands over the spectacle of felled woods and empty landscapes. But you do not destroy a pine forest just by felling it, unless you do something more: on the contrary it opens up the canopy and scatters the seed, and within a generation all these woods had regrown. Accidental or deliberate fires also sometimes devastated pinewoods, but again they usually caused no lasting damage as pine readily regenerates after a fire. It is not felling or fire that destroys a pine wood, but overgrazing of the ground beneath and beyond, whether by sheep or by deer.

Apart from a dozen western or high altitude woods which have vanished primarily due to climatic problems, there are still native pine woods everywhere that they were known four hundred years ago. Many of these survivors are smaller than once they were, and are less 'natural' because they have been attended to by foresters who have introduced genetically different stock or have interfered with their natural regeneration in other ways. But they are still quite magnificent.

I will conclude with an exhortation fitting for a national symbol. Let us value and preserve the natural character of the largest ancient forests that we have. Let us protect and pro-actively extend those which have become mere remnants. Let us also plant new pine woods where we would like to have them, for wildlife, for ornament or pleasure, even for profit. But let us not try to plant pine in wet and windy bogs and straths, on land that has been open for millennia and bears no trace of pine within the last few thousand years. And let's not pretend that we are restoring a lost Great Wood of Caledon or the Caledonian Forest as it existed 6000 years ago in a completely different context of history, soil and climate. We should be planting new pine woods or extending existing ones not out of nostalgia for some dubious myth, or because we fancy that we owe the past reparation for earlier destruction, but because we are lovers of Scotland and of Scots pine, modern improvers, who choose to treasure the pinewood ecosystem and relish the sight and smell of the woods today. That should be enough.

Acknowledgement

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